

INDIGENOUS PEOPLES IN LATIN AMERICA: ECONOMIC OPPORTUNITIES AND SOCIAL NETWORKS

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Abstract: Despite significant changes in poverty overall in Latin America, the proportion of indigenous peoples living in poverty did not change much from the early 1990s to the present. While earlier work focused on human development, much less has been done on the distribution and returns to income generating assets and the effect these have on income generation strategies. It is shown here that low income and low assets are mutually reinforcing. For instance, low education levels translate into low income, resulting in poor health and reduced schooling of future generations. Social networks affect the economic opportunities of individuals through two important channels: information and norms. However, our analysis shows that the networks available to indigenous peoples do not facilitate employment in non-traditional sectors.

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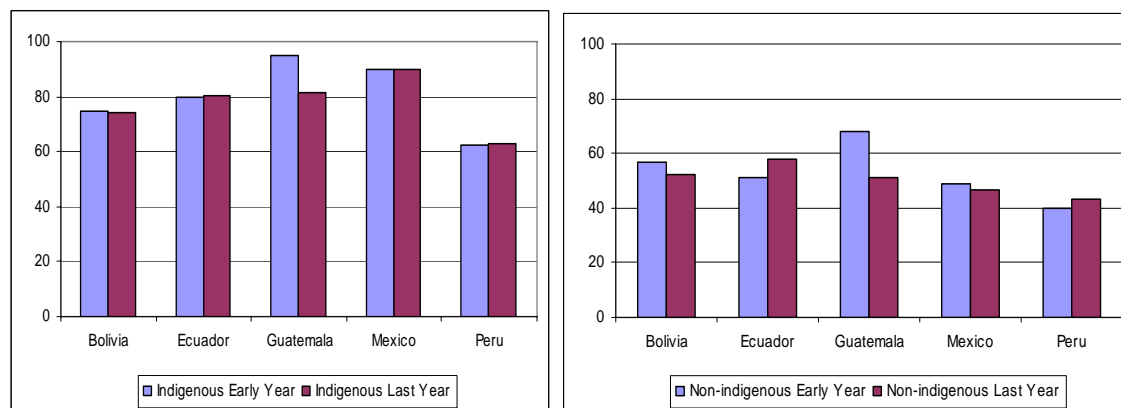
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1. INTRODUCTION

Indigenous peoples make up less than 5 percent of the world's population (370 million indigenous peoples), yet comprise 15 percent of the world's poor (UNPFII 2006). Over-generalizing and drawing on international accords, declarations and policy declarations, it would appear that four things define indigenous peoples (Martínez-Cobo 1986; and ILO Convention 169 of 1989): (i) they are the descendants of the original populations inhabiting their lands at the time of conquest and identify as such; (ii) they speak (or spoke) a distinct and native language, and typically aspire to remain distinct culturally, geographically and institutionally rather than assimilate; (iii) they have an affinity and attachment to the land; and (iv) they tend to maintain distinct social, economic and political institutions within their territories.

Due to the different methods used to identify indigenous peoples, estimates vary greatly. However, a reasonable lower-bound estimate of the indigenous population in Latin America is about 28 million (Hall and Patrinos 2006). It is also true that however defined, indigenous peoples are among the poorest of the poor in any country where they live (Psacharopoulos and Patrinos 1994; Hall and Patrinos 2006). Despite significant changes in poverty rates overall, the proportion of indigenous peoples in the region living in poverty did not change much in most countries from the early 1990s to the early 2000s (see Figure 1).

Figure 1: Poverty for Indigenous and Non-indigenous Peoples, 1990s to early 2000s, by Country



Source: Hall and Patrinos 2006

Notes: Poverty headcounts are reported for the following years: Bolivia, 1997 and 2002; Ecuador, 1994 and 2003; Guatemala, 1989 and 2000; Mexico, 1992 and 2002; Peru, 1994 and 2000

Previous studies show that being indigenous is associated with being poor, and that over time that relation has stayed constant. Studies also show that indigenous peoples' poverty has not diminished over time, including over the period of the world's first indigenous peoples decade, 1994-2004 (Hall and Patrinos 2006). Furthermore, indigenous peoples suffer from many other disadvantages, and even when they are able to accumulate human capital this does not translate into significantly greater earnings or a closing of the poverty gap with the non-indigenous population. This holds for countries where indigenous peoples are a small fraction of the overall population, such as Mexico (Ramírez 2006) and Chile (Hopenhayn 2003), countries where a large portion of the population is indigenous such as in Bolivia (Feiring 2003); in

developed countries such as Australia (Altman et al. 2005) and developing countries such as Vietnam (Plant 2002).

Most early work on poverty and indigenous peoples focused primarily on human development indicators. However, there is a need to look at the distribution and returns to income generating assets – physical capital, human capital, public assets or social capital – and their effect on income generation strategies of indigenous and non-indigenous populations. More specifically, the objective here is to examine three issues. First, to examine the composition of income and income-generating activities of rural and urban indigenous households in comparison to that of non-indigenous households in the respective rural and urban areas. Second, to investigate some of the factors determining the participation of indigenous households in income-generating activities (separately for both rural and urban areas) with a particular emphasis on the role of social networks and peer effects. Finally, to use these findings to identify possible key features of policies and programs that could effectively increase the economic opportunities available to, and, ultimately, the welfare of indigenous peoples in Latin America.

Methodological Framework

In doing so, we take an asset-based approach to understanding the causes of group differences in economic outcomes (Birdsall and Londoño 1997; Attanasio and Szekely 2001), and ask how the distribution and composition of assets may hinder or help indigenous peoples from taking advantage of economic opportunity.

Low income and low assets not only correlate; they are mutually reinforcing. For instance, low education translates into low income, which results in poor health and reduced education of future generations. Further, low assets not only reduce the ability to generate income, they also hinder the capacity to insure against shocks, thus increasing vulnerability. This is especially true when coupled with lacking credit and insurance markets. There is a two-way relationship between vulnerability and assets: not only are asset-poor households less likely to make investments in their productive capacity due to higher risk; if faced with lacking access to credit and insurance, they are also more likely sell off the few assets they own in a time of crisis. Finally, there are significant complementarities across assets, which imply that the returns to one asset depend crucially on access to another. Of course, the returns to assets also depend on spatial and structural factors such as geographic isolation, social exclusion and discrimination. These synergies between assets accumulate the disadvantages of the asset-poor in terms of returns to income generating activities.

Studies have documented lower endowments and returns to human capital among indigenous peoples, as well as lower access to public services (Hall and Patrinos 2006). Given the links between poverty and assets, we expect similar outcomes also for other income – generating assets. One important exception, however, is social capital, which has been found to be strong in the often tightly-knit indigenous communities. Social capital refers to the norms and networks that enable people to act collectively (Woolcock and Narayan 2000). Considering that this form of capital is a relatively abundant asset among indigenous peoples, we devote particular attention to the role of social networks in determining economic outcomes.

More specifically, the paper addresses several inter-related questions, including:

- i. What are the differences in the income generating strategies between indigenous and non-indigenous households?
- ii. What are the differences in endowments of physical, human, public and social assets between indigenous and other non-indigenous households, and how does this affect income – generating activities?
- iii. What is the potential impact of various public interventions on the welfare (measured by consumption) of indigenous households aimed at increasing access to basic services, markets and infrastructure?
- iv. Are there any potential complementarities or substitutabilities across different interventions aimed at helping indigenous peoples?
- v. What is the role of social networks in the economic choices of indigenous (and non-indigenous) households? For example, do social networks have a positive or a negative effect on the choices of households?
- vi. How does the size of the “social network effect” differ across some key economic choices? Economic choices looked at in the studies include: migration, occupational and sector choice, children’s school attendance and work, use of health services (traditional or modern), and the participation in social assistance programs
- vii. Are the social network effects stronger or weaker for indigenous or non-indigenous households?

Countries Studied and Data Sources

The countries included in the regional study – Bolivia, Ecuador, Guatemala, Mexico and Peru — were chosen based on the extent to which the indigenous constitute a significant fraction of the population and this selection follows Hall and Patrinos (2006). The empirical analysis combines recent household surveys in each of these countries along with the most recent census data available (for details, see Patrinos and Skoufias 2007).

The paper is organized as follows: section 2 provides an overview of the broad range of views in the literature regarding the causes of the condition of indigenous peoples, and discusses the different approaches to indigenous development that have emerged from these. Section 3 explores findings from the five different country studies in terms of economic opportunity and the constraints indigenous peoples face in taking advantage of these, while Section 4 discusses findings from the analyses of how social networks affect the economic outcomes of the indigenous. Section 5 summarizes findings and discusses implications for public policy.

2. ECONOMIC DEVELOPMENT AND INDIGENOUS PEOPLES

Several hypotheses exist regarding the disadvantaged situation of indigenous peoples and the constraints they face in terms of their access to, and ability to benefit from, economic opportunity. In order to place this work within this myriad of approaches, this section gives a select summary of the literature. We first discuss the asset-based approach, and provide also a review of human capital theory. A set of cultural theories including those that focus on indigenous paths to development is then presented. Not discussed in depth here, is a branch of the literature that focuses on market discrimination, assimilation and the role of stigma. These explanations link closely to a broader set of structural theories commonly used to explain the

situation of indigenous peoples (for example, theories of internal colonialism, dual economy and labor market segmentation).

Assets

Asset-based approaches to welfare look at the process of income generation and focus both on asset endowments (size of land, years of education), and the rate of return to assets. Attanasio and Szekely (2001) state that by taking such an approach, attention is given both to the *ability* to generate income as determined by access to income-earning assets, as well as the *opportunity* to generate income which they define as the rates of use and returns to assets. Along these same lines, Bebbington (1999) develops framework for analyzing poverty-reducing livelihoods in rural Latin America, but focuses in particular on the importance of social capital as an asset through which people access other resources and actors.

Empirical studies of poverty in Latin America also show that the rate of return to an asset is affected by the ownership or access to other, complementary assets, which highlights the importance of understanding these potential synergies. Escobal and Torero (2005) show how *returns* to assets in rural Peru are as important as asset *levels* in the determination of wealth status, and that returns are modified by access to complementary assets. Their findings indicate a positive effect of public assets on both the returns to education and the returns to land, which suggest that private and public assets are complementary and that access to public assets can be used to strengthen the return from private assets. A study of poverty in Honduras (Jansen et al. 2005) finds that the interaction between access to credit and land, and between higher levels of formal education and land, has a positive effect on income. In other words, education, credit and public services may play a role in increasing the returns to land. Similar findings have been reported for the returns to land in rural Mexico (Finan et al. 2005). Fewer studies have looked at the interaction between social capital and other assets (but see Grey-Molina 1999 on Bolivia).

The significant and positive relationship between human capital (education, experience and health) and earnings is well-documented in the literature (Psacharopoulos and Patrinos 2004). The usual explanation put forward, consistent with the human capital approach, is that schooling contributes to individual productivity that, in turn, leads to higher individual earnings. The earnings advantage of the more educated relative to the less educated is subject to the laws of supply and demand: as the numbers of the more educated increase, their earnings advantage declines and the minimum qualifications for given jobs rise in line with increased relative supplies. The puzzle is why if indigenous levels of schooling increased over the last decade and the gap with non-indigenous people were reduced did the poverty gap between indigenous and non-indigenous people not narrow (Hall and Patrinos 2006).

Of course, years of schooling, as mentioned above, masks significant quality gaps in learning outcomes between indigenous and non-indigenous people. Poor quality of human capital is thus one potential explanation. That is, despite the rapid and significant accumulation of education, the low quality of schooling prevents this from being as effective as it could be – in terms of actualized returns in the labor market. There is strong evidence that the quality of education that indigenous peoples receive in Latin America is poor, as measured by learning outcomes (see, for example, McEwan 2004; Hernandez-Zavala et al. 2006).

Other hypotheses in this line of thinking are concerned with the productivity of schooling. That is, for the same level of schooling and the same level of ability, different outcomes can result due to the application of skills in the labor market. Individual skills may be developed both in and out of school. Group variations in rates of returns to schooling arise from differences in the ability to convert the schooling process into earnings (Chiswick 1988). This may be a consequence of parental investments in the home-produced components of child quality, although one can think of many other reasons. It would appear that members of more successful groups have parents with higher levels of schooling, fewer siblings to compete with for parental time and other family resources, and have mothers who are less likely to work when young children are in the household. A similar hypothesis states that differences are due to class background rather than discrimination (for Bolivia see Kelley 1988; for Brazil see Webster and Dwyer 1988; Silva 1985). That is, the great differences between groups could be due to the natural working of economic forces, rather than discrimination.

Large income differences between groups could also be due to weak links in the production chain (Kremer 1993). That is, since production consists of a number of tasks, then the value of the resulting output depends on the successful performance of all tasks. Higher skilled workers will tend to be matched to work together. Small differences in skill levels will lead to great differences in group incomes.

While asset endowments and combinations of assets clearly matter, differential socioeconomic outcomes may also be due, of course, to discrimination against indigenous groups. Discrimination against distinct groups may work to deleteriously affect an individual's access to schooling, the quality of schooling that individual receives, and labor market performance. This leads to lower schooling levels, lower returns to schooling, lower earnings and, ultimately, higher levels of poverty. Becker's (1971) seminal work on discrimination attempts to explain segregation in the workplace. He postulates that the differential is due to individual *tastes* for discrimination against other labor market participants. Becker (1971) also predicts that competitive forces in the economy lead to a gradual elimination of wage discrimination over time. Earnings differentials then, according to this theory, are a short-term or disequilibrium situation that are bound to disappear as long as some employers prefer profits to prejudice. This explanation has however been criticized for its inability to account for enduring differences in earnings between whites and non-whites in the United States (Darity 1982).

Indigenous Path to Development

Traditional economic theory is based on the fundamental assumption that all humans share the same economic decision-making processes and that market returns are the most important determinants to individual decision-making. However, recent evidence has begun to cast a shadow of doubt over these deep-held assumptions. Carefully designed experimental studies suggest that economic decisions, economic reasoning, and responses to economic incentives are heavily influenced by cultural differences (Henrich 2000; Henrich et al. 2005; Hoff and Pandey 2004, 2006). For instance, while discrimination implies the attribution of characteristics to an individual by other members of a society (such as prejudices), these negative beliefs may also be internalized by the ones discriminated against. As shown by Loury (2001), beliefs perpetuate poverty when the social and normative construction of race induces an ingrained stigma that inhibits the actions of individuals. These experimental studies raise

questions as to whether or not oppressed groups would overcome their disadvantages, even if discrimination were to be dismantled and opportunities distributed equally.

It is also argued that indigenous people who are *traditional* will place less importance on the labor force and will use it only to achieve a specific, short-term end, such as obtaining cash to finance a lengthy period out of the labor market. Such individuals have been labeled as *target* workers: they work only as long as necessary to obtain a fixed sum of wages (Sandefur and Scott 1983). The reasons put forward for this behavior include a desire to work at one's own pace and the importance of kinship and community in indigenous societies. The theory of target workers was developed from analyses of the work behavior of peasants and has been applied to indigenous peoples of the Americas.

Traditional indigenous Americans see themselves as members of communities first, and are driven more by the good of the community than by individual achievement. This characteristic is expected to have a negative effect on labor force attachment and, ultimately, wages. Indigenous people who reside in the cities normally maintain their rural ties and landholdings (Saavedra 1981). For instance, many Aymara who now live in urban environments maintain ties with the rural communities to their mutual advantage (Hardman 1981). At the same time, the Aymara value education highly, which meshes with their traditional values of individualism, hard work and communal and private advancement. Open competition and forceful self-expression, however, are missing from Aymara culture. Level of education, however, is expected to lead to a decline in traditional activities (Stabler 1990).

Others argue that in an expanding modern economy, there is a possibility that kinship-based systems – a common trait among indigenous peoples – may begin to act as “instruments of stagnation” by taking collective actions ex-ante that raise exit barriers from the kin group, and thus holding back their members from benefiting from market development (Hoff and Sen 2005). Small communities can also ensure the loyalty of members by “taxing” activities outside the “club” thus inhibiting innovation (Berman 2000). The definition of group membership or kinship networks is close to the specific type of social capital defined as *bonding* social capital; that is, relations among relatively homogenous groups such as family members, close friends or ethnic fraternal organizations. While social capital can be leveraged for material gain – that is, by helping individuals access secure jobs or take advantage of other economic opportunities – it can also be a liability. For example, there are costs in that those same ties can place considerable non-economic claims on members' sense of obligation and commitment, with negative economic consequences. Furthermore, group loyalties may be so strong that they isolate members from information about employment opportunities, foster a climate of ridicule toward efforts to study and work hard, or siphon off hard-won assets (Woolcock 2001). This set of theories then, describe how the disadvantaged economic status of some groups may be perpetuated by group-level influences on individuals.

With this background in mind, Collins (1983), for example, reports that kinship-based exchange relationships such as the institution of *compadrazgo* also play an important role in providing economic security and well-being. Thus, there could be an indigenous path to development that is distinct from the modern or mainstream development model. In addition to the kinship networks, other strengths of the indigenous include collective control and sustainable management of natural resources, their deep respect for the knowledge of their elders, and a close spiritual attachment to their ancestors and the earth (Davis and Patrinos 1996). Stephen (1991) provides another example of the important role of social structure, and social and

economic institutions (such as reciprocal labor exchanges and extended kin networks) in the success of craft production projects.

Approaches to Indigenous Development

Based on the different views of the root causes of the condition of indigenous peoples, various solutions have been put forward to address the disadvantaged situation of indigenous peoples, starting with traditional policies of assimilation and integration. More recently, however, policies and strategies began focusing on the need for indigenous peoples to self-manage their development process, an approach labeled ethno-development that is essentially the autonomous capacity of culturally-differentiated societies to control their own development (Uquillas and Eltz 2004). The World Bank, for instance, in the mid-1990s began investing in initiatives to provide technical assistance and capacity-strengthening programs for indigenous organizations (Davis and Patrinos 1996).

Building on the concept of ethno-development, indigenous organizations, academics and international development agencies have more recently adopted the term development with identity (Uquillas and Eltz 2004). Development with identity includes the strengthening of indigenous peoples' capacities, harmony with the environment, sound management of resources, exercise of authority, and respect for rights. It includes the mainstreaming of indigenous issues, while giving them more authority; and in accordance with their own world view and governance structures. It also includes a focus on the social capital of indigenous peoples, as well as titling of lands (including communal indigenous lands), and access to financial and credit markets through technical assistance. To date, most programs and strategies under the umbrella development with identity are untried and untested, especially in Latin America, but some successful case studies are found in other countries, including New Zealand (Loomis 2000; Loomis and Mahima 2003), Canada and Australia (Altman et al. 2005).

3. ECONOMIC OPPORTUNITIES

In the analysis of economic opportunities we examine indigenous/non-indigenous differences in terms of: (i) participation in income-generating activities and sources of income; (ii) the distribution of assets and their returns; (iii) productive structures as captured by access to infrastructure and basic services; and (iv) participation in public programs and the impact of these on welfare.

Sectors of Employment, Occupations and Sources of Income

The income generating strategies differs between indigenous and other non-indigenous households in a variety of aspects. Overall, indigenous peoples are more likely to be involved in low-skilled, low wage occupations, and depend to an inordinately high extent on agriculture for their livelihood. In addition, evidence from three out of the five countries also suggests that incomes of indigenous peoples are less diversified than for the non-indigenous.

In terms of sources of income, Table 1 shows that in rural areas, a much larger portion of indigenous incomes is derived from agricultural activities than what the case is for the non-indigenous. The share of income derived from agriculture ranges from 49 percent in rural Mexico to 64 percent in Bolivia (Contreras, Kruger and Zapata 2006). The largest difference is found in Mexico where only 28 percent of the total income of non-indigenous is from agriculture. This indicates that indigenous peoples are consistently less able to tap into non-agricultural jobs in rural areas compared to non-indigenous peoples. Further, in all countries but Mexico, a larger portion of agricultural income is from non-waged labor. In Bolivia practically all agricultural income is derived from non-wage, while in Mexico a little less than 20 percent is.

Table 1: Sources of Income in Rural Areas

	Indigenous					Non-Indigenous				
	<u>Labor Income</u>				Non-labor income	<u>Labor Income</u>				Non-labor income
	Agriculture		Non-agricultural			Agriculture		Non-agricultural		
	Waged	Non-waged	Waged	Non-waged		Waged	Non-waged	Waged	Non-waged	
Bolivia	0.5	63.9	12	10.8	12.7	4.8	52.5	27.1	7.3	8.8
Guatemala	17.7	31.5	24.5	19.4	6.9	16.8	18.5	33.1	22.4	9.2
Mexico	40.5	8.5	6.9	12	32.1	16.2	12.1	21.7	19.8	30.5
Peru	16.5	44.8	21.7	17.1	9.0	18.9	40.8	21.6	18.6	9.0

In Bolivia, the average monthly income of an indigenous household is equivalent to about 50 percent of a non-indigenous family. This gap is mainly due to the fact that the largest source of income (47 percent) among the non-indigenous is non-agricultural wages, which are higher, on average, than income from self-employment and from agricultural activities. In other words, a higher share of non-indigenous household income comes from the highest-paying occupations. In urban areas, the main source of income for both indigenous and non-indigenous families is non-agricultural wages, followed by non-agricultural self-employment, whereas in rural areas it is agricultural self-employment. Looking at urban and rural areas separately then, we find that the contribution of different income sources to total household income is similar. However, indigenous families receive lower average incomes, even within the same types of activities.

In Guatemala, indigenous peoples have a less diversified composition of household income, especially in rural areas. Isolation and fragmentation lead to fewer opportunities for indigenous peoples to diversify their income sources. Looking at income sources by occupational categories, most of the indigenous peoples' income in rural as well as urban areas is generated by self-employment, while the non-indigenous receive higher proportions of earnings from salaries. Within non-labor income, non-indigenous households receive higher shares of income from capital sources (interests, dividends, rents), retirement pensions, and private and public transfers, both in rural and urban areas.

In Mexico, the average per capita monthly income of the indigenous household is close to the average income of the non-indigenous poor – slightly above in rural areas and slightly below in urban areas. The income gap is highest in urban areas, where the income of the non-indigenous is more than three times higher than that of the indigenous. In rural areas, indigenous labor incomes come mostly from agriculture and derive above all from waged agricultural work. Non-indigenous labor incomes, on the other hand, derive primarily from non-agricultural income sources. Even when compared with the non-indigenous poor, the incomes of the indigenous are more highly concentrated in agriculture. In terms of non-labor income, public transfers are a more important source for the indigenous, while the impact of private transfers on their total income is negligible – a reflection of lower rates of migration among the indigenous, above all in terms of international migration.

In Peru, the non-indigenous households tend to have a more diversified portfolio, similar to what was found in Guatemala. The per capita income of the non-indigenous population is almost double that of the indigenous population. Although the differential is much larger in urban areas, even within rural areas the per capita income of the non-indigenous is on average 40 percent higher than that of the indigenous population. Escobal and Ponce (2006) provide an income decomposition of the mean per capita income differential between the indigenous and non-indigenous in both rural and urban areas. The results show that for both rural and urban Peru about 40 percent of the income differential can be attributed to differences in endowments (education, private assets, access to public services).

Borja-Vega and Lunde (2006) look at the concentration and diversification of economic activity rather than income sources. Overall, the activities of indigenous engaged in any form of agricultural activity were found to be more concentrated than similarly engaged non-indigenous. However, when looking at individuals engaged in skilled employment we see that the indigenous have on average a much higher diversification of activities than non-indigenous. The most striking difference between indigenous and non-indigenous is the very concentrated activities of non-indigenous engaged in non-agricultural waged employment, and the highly diversified activities of indigenous employed in the same.

By comparing occupational outcomes in both rural and urban areas across the region, further differences between the indigenous and non-indigenous emerge. In rural areas, we first see a confirmation of the relatively higher dependency on agriculture as a sector of economic activity among the indigenous (Table 2). The indigenous are also more likely to work as unskilled laborers compared to non-indigenous in rural areas. In urban areas, indigenous workers are less likely to work for wages as witnessed by the fact that less than 50 percent of urban indigenous in Guatemala have waged employment compared to 65 percent for non-indigenous. The pattern is replicated in all other countries except Mexico where the analysis of occupations was limited to rural areas. The indigenous are at the same time more likely to be

informally employed. In Ecuador for instance, we see that while only 28 percent of urban indigenous are formally employed, over 50 percent of the non-indigenous are. Similar but slightly smaller indigenous/non-indigenous gaps are found in urban areas of Peru and Guatemala.

Table 2: Occupational Participation

	Rural				Urban			
	Unskilled		Agriculture		Waged		Formal	
	Indigenous	Non indigenous	Indigenous	Non-indigenous	Indigenous	Non-indigenous	Indigenous	Non-indigenous
Bolivia	--	--	--	--	47.9	56.4	--	--
Ecuador	75.5	64.9	62.6	51.8	57.7	70.1	28	51.2
Guatemala	97.0	92.3	60.0	54.0	48.9	65.2	30.6	52.4
Mexico	--	--	75.6	66.9	--	--	--	--
Peru	38.4	32.0	82.5	75.0	58.8	83.2	37.7	48.0

In Bolivia, a comparison of different ethnic groups that make up the indigenous population shows that Quechua households are slightly better off in terms of the quality of their employment as they are more likely to be employers and less likely to be self-employed. Further, spouses who belong to any indigenous group are more likely to be employed than spouses who are not indigenous, but they are more likely to work in lower-quality jobs (usually informal or agricultural employment) than non-indigenous spouses.

In Ecuador, in terms of unskilled employment, we find that while indigenous and non-indigenous have similar participation rates in waged employment, indigenous are more likely to work in the agricultural sector when engaging in waged labor than the non-indigenous. If we look at skilled employment, participation in waged labor is higher for non-indigenous than indigenous, in particular in urban areas where 42 percent of the non-indigenous work/force engages in skilled waged labor compared to only 26 percent of the indigenous. Borja-Vega and Lunde (2006) also find that 87 percent of indigenous in rural areas report having a second occupation or activity, while only 22 percent of rural non-indigenous do, indicating a need among rural indigenous to complement primary activities – mostly unwaged agricultural work.

In rural Peru, the indigenous are more likely to be devoted full-time to self-employed agricultural activities than non-indigenous populations living in the same areas, while the non-indigenous rural households are more likely than the indigenous to be engaged in non-agricultural self-employment (Escobal and Ponce 2006). Labor returns are higher for non-indigenous than for the indigenous. The hourly income gap is much higher for medium- and low-skilled jobs than for high-skilled jobs, which indicates that education may reduce some of the indigenous/non-indigenous wage gap in rural areas. In urban areas, indigenous workers also receive lower returns to their labor; however, here the wage gap is particularly pronounced in

highly skilled occupations where the earning premium against indigenous people is more than 50 percent. In terms of occupations, the urban indigenous are more likely to engage in low-skilled jobs, and to work more than one job, than non-indigenous people living in the same area.

The rural indigenous in Guatemala have, as shown above, a higher probability of participating in agricultural activities than the non-indigenous. Within the agricultural sector, indigenous and non-indigenous participate similarly as waged workers and self-employed, although the percentage of unpaid workers is higher among the indigenous. Subsistence farming is more frequent among indigenous. Within the non-agricultural sector, the proportion of waged workers is higher among the non-indigenous, while the percentage of indigenous working in agricultural activities remains high in urban areas. The percentage of waged workers in the non-agricultural sector is 1.5 times higher among the non-indigenous compared to the indigenous. Fazio (2006) finds that hourly incomes are higher for the non-indigenous compared to the indigenous across all categories of occupation in both rural and urban areas.

Finally, in rural Mexico, the majority of individuals list agriculture as their primary sector of employment, regardless of being indigenous or non-indigenous (Borja-Vega, Lunde and Moreno 2006). However, only 24 percent of the non-indigenous are engaged in waged agricultural labor compared with 37 percent of the indigenous. In the non-agricultural sectors, non-wage work is more common for both groups than waged work. Irrespective of the sector, the non-indigenous are more likely to be employers; 17 percent of the non-indigenous report being employers compared with only 2 percent of indigenous workers.

Assets – Distribution and Returns

As asset endowments correlate with income, it is not surprising to find that the generally poorer indigenous populations are endowed with less physical, human and financial assets than are the non-indigenous. In addition, the indigenous land holdings were found to be significantly smaller, while evidence on access to credit showed the limited financial assets of indigenous when compared to non-indigenous. Significant differences in years of schooling were found across all countries, and evidence also point to lower quality of the education that indigenous receive (Hall and Patrinos 2006).

Having fewer assets hinders indigenous peoples' ability to engage in income-generating activities and to take advantage of economic opportunity. However, it also lowers the return the indigenous receive from economic activity. Low levels of education hinder entry into higher paying jobs, while the lack of credit or machinery may be obstacles to increasing the productivity of agricultural activities. The role of asset endowments in determining economic opportunity is magnified by the complementary role of some assets (education, skills, credit and machinery) in making other assets and economic activities more productive. In Mexico, for instance, the quality of education and possibly also labor market discrimination affect returns to schooling, while the lack of complementary assets (that is, human capital) affects returns to land. In Ecuador the lack of entrepreneurial skills among indigenous peoples is attributed jointly to lack of human capital and limited access to credit. Consequently, there is a need for complementary interventions to allow indigenous peoples to increase their return on investment in productive assets. In addition, low asset endowment also makes it harder for households to insure themselves against shocks and volatility of income.

It is important to note that endowments of assets differ depending on geographic areas, as do indigenous/non-indigenous differences. Yet, the gap in endowments between indigenous and non-indigenous holds true even when looking at rural and urban areas separately. What does change when moving from rural to urban areas is the relative importance of different assets and the dynamics of asset complementarity. In rural areas, agricultural economic activities dominate and agrarian assets and complements to these take on a greater importance.

As mentioned above, evidence was found across all countries of significantly lower endowments of human capital, measured by years of schooling. The schooling gap was also found to persist even when comparing indigenous and non-indigenous households at similar income levels or living in similarly disadvantaged areas. In Ecuador, indigenous individuals were found to have lower education and schooling attendance than non-indigenous individuals at similar levels of wellbeing (in the same consumption quintiles), while in Mexico, indigenous peoples living in remote and disadvantaged areas had lower levels of schooling than non-indigenous that live in equally disadvantaged locations.

Low levels of education not only prevent people from entering into certain occupations, they also affect the person's ability to exploit other income-generating assets. Research has shown that such interactions between human capital and other potentially productive assets are important.

A disadvantaged position of indigenous is reproduced if we look at land assets. Today, the distribution of agrarian assets is highly unequal in Latin America (Deininger and Olinto 2000). Table 3 shows that the size of indigenous landholdings are between 2 times smaller than non-indigenous land holdings in Peru to nearly 8 times smaller in Ecuador. The rural land titling program in Peru confirms that the average plot size is considerably smaller for indigenous peoples than for the non-indigenous. Quality of land holdings also differs. Over time the non-indigenous population in Guatemala pushed out indigenous peoples from productive land sites, while non-indigenous land holdings are also much larger.

Interestingly, speaking an indigenous language was also shown to positively impact the productivity of land, explained by higher social capital among indigenous farmers. In Mexico, Finan et al. (2005) show that education, contextual factors and being indigenous are factors that impact on the marginal welfare value of the land. Being indigenous is an important negative social asset as the marginal value of land for non-indigenous households is on average twice as high as it is for indigenous households. The structure of land ownership also affects access to complementary assets such as credit. In Guatemala, indigenous peoples are much less likely to hold formal title to their lands, which along with the isolation and poor quality of the land, make land holdings useless as collateral, thus limiting their access to credit and finance. In Mexico, on the other hand, of the extremely poor with access to land, only 24 percent of the indigenous own their land while 36 percent of the non-indigenous do.

Table 3: Indigenous Land Assets: Facts and Evidence Summary

	Size*	Title	Quality	Location	Ownership	Credit
Ecuador	7.6	--	--	--	--	Improves productivity
Guatemala	3.6	untitled	poor	isolated	--	
Mexico	restricted	diverse	poor	diverse	25% private, 71% communal & <i>ejido</i>	
Peru	2.2	registered titles	--	--	74% private, 16% communal	

*times smaller than non indigenous

Given that the majority of indigenous peoples in Latin America live in rural areas, land is a key productive asset. For the indigenous however, land is not only a basis for economic subsistence but also strongly linked to their identity and in many societies land takes on a sacred and spiritual meaning. As such, legal recognition of their lands has been one of the foremost demands of indigenous peoples, as witnessed by indigenous social mobilization in many countries to promote these rights. The legal frameworks for indigenous land rights and land tenure systems vary greatly across countries (Plant and Hvalkof 2001).

Access to financial assets – credit and savings – plays an important role in determining rural economic opportunity as it complements other assets, for instance, by helping increase the productivity of land or reducing the volatility of agricultural incomes (Orden et al. 2004). Only a small fraction of indigenous households have access to formal (or informal) credit, while the non-indigenous have 2-3 times more access to credit. Reasons why this is may vary. Evidence from Peru suggests that education increases the likelihood of obtaining credit for indigenous peoples, mainly through increased access to information. Yet, indigenous peoples in Peru have relatively less education than do non-indigenous people. In Ecuador, business owners and farmers asked about factors affecting access to credit listed the lack of interest and high interest rates as the main reasons preventing individuals from seeking business credit. In rural areas, more indigenous business owners are deterred from seeking a loan due to high interest rates than non-indigenous – 36 and 23 percent. Further, interest rates of formal credit are indeed higher for indigenous businesses and farms.

It is not clear if small landholders would improve their access to credit even with a title, and the land market could lead to a redistribution of land to capitalized farmers. Since smallholders often lack well defined and legally recognized property rights to land, land-titling programs appear attractive as a way to provide institutional preconditions for broad-based growth. However, current smallholders may already have localized, but non-transferable tenure security. Therefore, while land titling may make localized tenure security transferable (thus valuable as collateral), this may not by itself suffice to improve the capital access of current smallholders (see McKechnie 2005). In fact, the largest impact of land titling may be to enhance the marketability of smallholder land to other, better-capitalized farmers (Carter and Barham 1996). The importance of assets both as key to productivity and as complements to these

is particularly salient when looking at the limitations faced by small landholders. These limitations include: fragmented rural markets, imperfect information, the lack of production credit, price fluctuations, and factors that reduce competitiveness such as obsolete technology, risk exposure, lower human capital resources and management skills, and transaction costs associated with coordinating quality control or the processing of perishables (Carter and Barham 1996). In Ecuador the constraints indigenous peoples face when engaging in economic activity, in particular in terms of access to complementary assets such as education and credit, and when they work as farmers or entrepreneurs in the rural agricultural sector, are significant (Borja-Vega and Lunde 2006).

If one considers the fact that over the last decade there was little improvement in indigenous peoples' living standards despite considerable increases in human capital levels, it appears that discrimination may be playing a role in lowering the returns to the assets of indigenous. In Hall and Patrinos (2006) it was shown that the unexplained portion of the earnings gap between indigenous and non-indigenous peoples was about 50 percent – but with considerable range between the five Latin American countries studied. This unexplained portion represents an estimate of potential discrimination, but is considered an *upper* bound in the literature, as well as in Hall and Patrinos (2006), because there could be other unobserved factors, as well as prior or pre-market factors, that account for the differences in earnings.

For instance, we know that in the case of indigenous peoples in Latin America, indigenous students receive an inferior education and this is reflected in differential test scores that favor non-indigenous students. On average, indigenous children learn only about as much as three-fourths of what non-indigenous learn at the same grade level. Therefore, one more year of schooling (quantity) for indigenous peoples will not have the same impact on increasing earnings given the poor quality. Quality of education then, surely makes up some of the upper bound estimate.

Other factors that these studies – Hall and Patrinos (2006) included – are not able to control for, include unequal access to credit and finance, which we know are less accessible by indigenous peoples yet key for converting human capital into increased earnings (Patrinos and Skoufias 2007). Moreover, since most indigenous peoples are concentrated in agricultural work, then the poor quality and inferior size of their land holdings would serve to reduce returns to labor on such a poor asset. This is more or less confirmed in Hall and Patrinos (2006) since in the case of Bolivia they present a decomposition of earnings differentials for urban areas, and the estimate of discrimination (upper bound) is about half what is found for other countries. Finally, typical household surveys do not tell us anything about the motivation of indigenous workers. Are they earning less because of unequal pay, or are they choosing to work less for lower pay in order to satisfy other needs (for example, target worker theory)?

Yet, while it may be safe to conclude that an unexplained earnings gap would remain even if one were to be able to include all the factors mentioned above – some of them subject to pre-market or prior discrimination themselves, but that would require experimental research to confirm – it would almost certainly not be as high as 50 percent (or even 25 percent in the case of urban Bolivia). That is, there is still a lot that can be done to improve outcomes focused solely on the “explained” portion of the earnings differential. Clearly, human capital is more important than previously thought. Not only is it important on its own for productivity improvements, but it also makes other assets more productive. Again, the evidence points to a

need for complementary interventions to allow indigenous peoples to increase their return on investment in productive assets.

Infrastructure and Basic Services

Another important complement to assets is infrastructure (roads, irrigation networks, etc.) and basic services such as running water and electricity, which can help to increase productivity and diversification of income generating activities. In rural Mexico, for instance, the marginal value of land depends not only on complementary assets such as education, but also on infrastructure such as access to roads. Lack of infrastructure and basic services is of course related to welfare outcomes. At the same time, the higher poverty rates experienced by indigenous peoples may be the result of an uneven distribution of public assets across households within a particular area.

In Peru there are great differences between the access of urban households and their rural (ethnicity-wise) peers to basic public services such as access to piped water, sewerage or electricity. However, in both urban and rural areas, indigenous people living in areas with a large share of indigenous population are more likely than those living in areas with a small share of indigenous population to benefit from assistance programs.

That geographical location affects infrastructure and access to basic services was shown across all country studies. In Peru, Escobal and Ponce (2006) suggest that lacking access to infrastructure and basic services may operate as a form of social exclusion mechanism, and could be quite different depending on where the individual lives. In Mexico, the majority of indigenous peoples live in small, rural communities – most of which are located in the poorer southern states. Many of these communities are not only rural but also remotely located with disperse populations and their deprivation is manifest in poor infrastructure and housing conditions. In Ecuador, studies have also shown how access to basic services is poorer in the highlands – where the majority of indigenous live – than other regions. (Larrea and Montenegro 2006). In other words, coverage of infrastructure and access to services for the indigenous will be affected by locational factors, in particular when indigenous peoples are more likely to live in rural areas and in regions within rural areas where accessibility is more difficult.

Public Interventions and Indigenous Welfare

Public interventions should benefit indigenous households since they are more likely to be poor. Expenditures on the poor have increased significantly over the last decade. However, few programs are targeted specifically at the indigenous, and few are shown to benefit them. Yet, previous research has shown that public spending on indigenous peoples also increased over the last decade (Hall and Patrinos 2006). Still, with few exceptions, most of that spending has not been very well targeted, or very effective.

In Peru, as mentioned earlier, indigenous peoples living in highly indigenous contexts do indeed have a higher likelihood of benefiting from public assistance programs, in both urban and rural areas. Benefits, however, are uneven. In general, moving from areas with low concentrations of indigenous peoples to areas with larger indigenous population, welfare use tends to increase for all people, indigenous and non-indigenous. This indicates that areas with a large indigenous population tend to be the areas most assisted by the government in urban regions because they are also the poorest.

In Mexico, one of the most important anti-poverty programs – *Oportunidades* (formerly *Progres*a), a conditional cash transfer program that benefits more than 25 million people – has proven to be very well targeted, as well as effective. As the program is well-targeted, it disproportionately benefits indigenous peoples (Ramirez 2006). As a result, the program has been instrumental in reducing the schooling attainment gap between indigenous and non-indigenous children. *Oportunidades* has been subject to rigorous impact evaluations that show the program to be highly effective for short-term poverty alleviation, human capital acquisition, and health and nutrition benefits (Parker and Skoufias 2001; Gertler 2000; Behrman et al., 2005; Schultz 2004). Evaluations also show that program effects are at play in both indigenous and non-indigenous recipient households. Using panel data, Bando et al. (2005) show that indigenous peoples benefit slightly more from the interventions in terms of reduced child labor activity and increased schooling attendance.

While effective in alleviating poverty and in building human capital, a recent study shows how the benefits of *Oportunidades* extend beyond this and is also affecting households' savings and productive investment. Gertler, Martinez and Rubio-Codina (2006) find that poor households invest the program cash transfers in income-generating activities that they otherwise would not have been able to invest in. In rural areas, households increased their investment in micro-enterprises and agricultural activities. The authors find that for each dollar transferred, beneficiary households used 88 cents to purchase consumption goods and services, and invested the rest. The investments improved the household's ability to generate income, with an estimated rate of return of over 17 percent, suggesting that these households were both liquidity and credit constrained. Davis et al. (2001) show that the multiplier effect of cash benefits received under the Procampo program – an agricultural subsidy for small scale farmers in Mexico – was 2.06, the multiplier effect for indigenous households was below 1, meaning that indigenous households did not use transfers to generate more income. By investing transfers to raise income, beneficiary households were able to increase their consumption by 34 percent after 5.5 years in the program. These results suggest that cash transfers to the poor may raise long term living standards that are maintained after program benefits end.

In Guatemala, public spending on social protection (social assistance and social insurance) is low by international standards (Lindert, Skoufias and Shapiro 2006). The country lacks a comprehensive social safety net, and has numerous programs scattered across many different agencies, shifting institutional responsibilities, duplications and often regressive benefits. The social assistance programs are regressive in absolute terms (the richest quintiles receive a larger percentage of total transfers), but progressive in relative terms (the transfers are relatively more important in terms of total consumption of the poorest quintiles). The percentage of indigenous and non-indigenous covered by all social programs is fairly uniform. Regarding the absolute incidence of total social assistance, the non-indigenous receive a larger share of the total transfers. Nonetheless, the relative importance of the assistance out of total consumption is higher for the indigenous, representing on average almost 5 percent of total consumption compared to only 2.5 percent for the non-indigenous.

Bolivia's Basic Health Insurance program (BHI), whose objective is to reduce infant and maternal mortality, in addition to improving health outcomes, benefits indigenous and non-indigenous alike and program evaluations find that it is effectively targeted towards lower-income families. In Bolivia, Contreras, Kruger and Zapata (2006) show that households where at least one member aged six years or older used BHI during the previous year had lower welfare

levels than those that did not. BOLIVIDA – a pension program consisting of an annual transfer of \$60 to all Bolivians older than 65 years – also seems to benefit the poor more. There is a negative correlation between the share of household income represented by the BOLIVIDA transfer (a fixed amount transfer) and per capita household expenditures, which means that expenditure (which can be seen as a proxy for income) falls, the probability of receiving the pension increases.

While few public interventions are explicitly targeted at the indigenous population, even fewer have been subject to rigorous impact evaluation. An important exception is Mexico's *Oportunidades*. As discussed above, the program not only reduces short term poverty and increases human capital – with higher benefits for indigenous families – but also has been shown to contribute significantly to increasing investments in income-generating activities such as household enterprises and agricultural businesses. Thus, a large and generalized targeted program contributes to poverty alleviation, long term human capital attainment, and short-term increases in income-generating activities, thus giving all poor beneficiaries, including the indigenous, access to basic services, markets and productive infrastructure.

4. SOCIAL NETWORKS

The design of effective policies and programs aimed at creating better “economic opportunities” for indigenous populations requires a better understanding of the determinants of behavior within indigenous populations. Although sociologists have long emphasized the role of nonmarket interactions, through social structure, social networks and social norms, inhibiting upward mobility among segregated and disadvantaged groups of people (Granovetter 1985), economists have only recently begun to examine these topics (for example, Loury 2000; Gibbons 2005; Bertrand et al. 2000). These relatively new insights suggest that conventional market discrimination may be only a part of the problem. Recent examples of studies on discrimination include Bertrand and Mullainathan (2005) and Moreno et al. (2004). As a consequence, efforts to improve economic opportunities for indigenous people mainly through reducing wage and price discrimination may have little power to reduce the economic gaps between indigenous and non-indigenous groups.

In consideration of these issues one key component of this paper is the emphasis on the role of social networks in shaping economic opportunities available to indigenous households. Social networks can affect the economic opportunities of individuals through two important channels: information and norms. The information channel emphasizes the role of externalities; that is, how a person's ability to take advantage of economic opportunities depends on the behavior and knowledge of others. The social norm channel, on the other hand, emphasizes how a person's preferences themselves may depend on the behavior of others, either directly by affecting tastes or indirectly via social pressure (Lindbeck 1997; Lindbeck et al. 1999).

From a policy perspective, these social interaction effects may be critical for the success of initiatives aimed at providing economic opportunities for indigenous peoples. Depending on the context, social interactions (or social network effects) can generate spillover or social multiplier effects that strengthen or weaken the effects of a policy intervention. For example, the profitable cultivation of non-traditional agricultural export production by a few small farmers in an indigenous village may have large positive spillover effects through the peer group (or social network effects) on the production choices of other farmers in the same village (or even in other

villages nearby) (Hamilton and Fischer 2003). On the other hand, negative spillover effects arising from social norms about behavior and other community institutions and obligations may contribute to the reproduction of poverty among indigenous individuals and households.

Specifically, we offer some of the first empirical evidence on the potential role of network effects among indigenous peoples. It is hypothesized that individuals interact mainly with other peers who speak the same language. Therefore, individuals living in an area with more people speaking the same indigenous language are assumed to have more available contacts. As in Bertrand et al. (2000), the social network of an individual is characterized by two key dimensions: the quantity and quality of the network. The quantity of the social network or the *contact availability* is the fraction of the population in the household's community speaking the same indigenous language as the individual. The quality of the network is the fraction of the indigenous households in the country speaking the same indigenous language and participating in the economic activity investigated. Thus, the contacts from the same language group with high participation in any given economic activity (for example working in handicrafts, working in agriculture), are likely to have a strong influence on the decision to participate in the same activity.

In three out of the five countries studied, the empirical analysis of the role of social networks was conducted based on Census data. For Bolivia and Peru the social network variable was constructed using Census data and outcome variables from the corresponding most recent household surveys. One advantage offered by the Census data is their large sample sizes allow one to construct reliable measures of the quantity and quality of the networks as defined above. This advantage, however, comes at a cost since Census data contain only a limited number of economic activities. Defining the social network variable as the product of the two variables measuring the quantity and the quality of the network and including key control variables summarizing observed individual characteristics (such as age, education, etc.), characteristics of the residence, (family size, number of rooms, dirt floor, etc.), household assets, and binary variables (fixed effects) controlling for the language group of the individual, and the individual's locality of residence, one is able to ascertain whether the effect of social networks are positive and significant. The language-specific fixed effects absorb all the observed and unobserved characteristics of each language group, such as different levels of discrimination, cultural endowments, and other ethnic-specific attributes different than those related to the networks. The locality-specific fixed effects absorb all the observed and unobserved characteristics of localities, such as access to infrastructure, distance from urban and commercial centers, and job opportunities, among others.

The estimates obtained based on Census data from for Mexico, Guatemala and Ecuador reveal that social network effects differ depending on gender, area of residence (rural versus urban) and sector of employment.

In Mexico, indigenous social networks have a positive and significant effect on the employment of adult (20-65 year old) males as unskilled workers in both rural and urban areas. The effect of social networks on migration appears to be significant in the semi-urban areas only and not in the rural or in the urban areas. The only significant effect of social effects on female employment appears to be in the handicrafts/manufacturing industry in urban areas.

Guatemala offers the rare opportunity to investigate in more depth the role of social networks in the labor market and differences between indigenous and non-indigenous (Fazio

2006). The analysis of the job finding methods, based on data from the 2004 National Employment and Income Survey (ENEI), reveals that at the national level, indigenous peoples are almost 7 percent more likely to find a job through social contacts than the non-indigenous, controlling for demographics, educational and labor characteristics. In fact, in the rural areas indigenous peoples are 14 percent more likely to find a job through social contacts than the non-indigenous. This pattern reverses, however, in the urban areas. There, the indigenous peoples are 3.5 percent less likely to find a job through social contacts than the non-indigenous.

These aggregate estimates also seem to conceal substantial heterogeneity in the use of social contacts across different indigenous groups. In the rural areas, for example, the Q'eqchi are the most likely of all other indigenous groups to find a job through social contacts (30 percent for the Q'eqchi versus 10 percent for the Kiche). The two indigenous groups with a higher probability of getting a job through social contacts in urban areas are the Kiche and the Xinca.

Other interesting findings relate to the use of social networks among workers with a higher education level and workers in the informal sector (defined as workers in firms with less than 6 employees and not contributing to the social security system). Using the sample of informal workers only, it is found that in both rural and urban areas, indigenous workers are more likely than non-indigenous workers to find a job through social contacts (11.7 percent more likely in the rural areas and 1.6 percent in the urban areas). In contrast, when the sample is limited to workers with complete secondary or higher level of education, it is found that indigenous workers are less likely to find a job through social contacts. Thus, the social network of the indigenous in the urban areas is more limited than that of the non-indigenous. This is also confirmed by the fact that in urban areas indigenous people are more likely to find a job through formal methods (instead of social contacts). The relatively higher use of formal methods for finding a job by the indigenous than the non-indigenous in urban areas suggests that there is room for programs helping the indigenous find jobs in urban areas. Interestingly, indigenous people working in the public sector (either in urban or rural areas) are less likely than non-indigenous to have found their job through social contacts.

The Guatemalan survey also allows the distinction between getting help from relatives and help from friends/politicians. These two categories may be considered as analogous to the “bonding” social capital and “bridging” social capital concepts frequently encountered in the social capital literature (Woolcock and Narayan 2000). Bonding and bridging social capital may also be considered analogous to the “strong and weak ties” of Granovetter (1973). According to Granovetter (1973), the strength of a tie is a probably linear combination of the amount of time, emotional intensity, intimacy (mutual confiding), and reciprocal services which characterize the tie. The analysis reveals that the indigenous tend to use more the help from relatives (bonding social capital) than the non-indigenous. In contrast, the non-indigenous tend to use more the contacts from friends and politicians (bridging social capital). Thus, the form of social networks and the nature of social interactions among indigenous peoples suggest that the bridging social capital is relatively weak in comparison to bonding social capital.

Another trend that is changing the predominantly ‘bonding’ nature of indigenous social capital is migration. With indigenous migration to the United States on the rise, in particular from Mexico and Guatemala, traditional village-based kinship networks are turned into dynamic, transnational links. In other words, traditional ‘bonding’ social capital becomes ‘bridging’ social capital. These transnational networks are key, not only in helping more people migrate, but also

in securing that benefits flow back to the communities of origin. Similar trends can also be found among the indigenous migrants from Mexico, as documented by Fox and Rivera-Salgado (2004). Of particular interest is the transformation in some cases of strictly village-based bonds into cross-community networks, as migration opens new opportunities for collective action that “differed from those in the community of origin where cross-community solidarity was often blocked by persistent legacies of inter-village conflict” (Fox and Rivera-Salgado 2004: 12).

The empirical evidence presented so far sheds little light on the determinants of the strength of social network effects. In two of the countries, Guatemala and Ecuador, this issue is analyzed in further detail by examining how the strength of the network effect varies with access to basic services such as water services, sanitation services, and electricity.

In Guatemala in handicrafts, the strength of the social network effect is higher when individuals have access to electricity services alone (or simultaneous access to water, sanitation and electricity). Thus, it appears that there are complementarities between social networks and access to public services, at least in the handicraft sector. However, a detailed analysis of how the strength of the social network effect varies with access to the same public services in other sectors revealed that this finding cannot be generalized to more than handicrafts. Access to same public services in rural areas of Guatemala tends to weaken the strength of the social network effect in the decision to be self-employed, suggesting that public services act as a substitute for social networks (or vice versa).

Stronger results were obtained in Ecuador. In rural Ecuador, access to basic infrastructure appears to strengthen the effect of social networks in the decision to migrate and in the decision to work in wage employment and in entrepreneurial activities. Thus, in rural Ecuador, the wider prevalence of complementarities between social networks and access to public services suggests that investments in infrastructure are not only going to improve rural welfare directly but also have an indirect effect reinforcing the role of social networks in the employment of indigenous households across different sectors.

5. POLICY OPTIONS AND RESEARCH PRIORITIES

As a result of their historic economic and social exclusion from the process of development, indigenous peoples continue to have low endowments of human capital, limited access to productive land, basic services, financial and product markets, and poor infrastructure. Their main, if not only, resources are labor, and the set of social relations and institutions that they have come to develop over time as a means of achieving economic security and well-being in an agriculture-dependent way of life. In this context, the main policy issue is the choice and design of appropriate interventions that increase economic opportunities for the indigenous. Overall, the analysis in this paper suggests that focusing on one or two priority areas of intervention is likely to be ineffective due to the constraints that are encountered sooner or later in other areas. What are required are well-designed multi-sectoral development programs (infrastructure, access to credit, land, health, education and nutrition) that generate positive synergies among the different types of interventions. The examples of isolated interventions that either failed or had limited success abound.

The Mexican experience suggests that large-scale, poverty-targeted, Conditional Cash Transfer (CCT) programs that emphasize complementarities and synergies in investing in health, education and nutrition can potentially also generate savings and investments in spite of the

absence of credit and financial services in indigenous areas. Mexico's important and successful conditional cash transfer program, *Oportunidades*, is very well targeted and tends to benefit indigenous peoples disproportionately more. Besides well-documented short-term poverty alleviation, and education, health and nutrition improvements (Skoufias 2005), the program is also shown to increase investments in income-generating activities that would otherwise not have occurred without the program. Rural households increased their investment in productive activities such as micro-enterprises and agriculture. While most of the transfer was used by families to consume goods and services, a small amount was saved and then invested in productive assets. In just over five years the investments produced a 17 percent rate of return (Gertler, Martinez and Rubio-Codina 2006). Thus, a short term poverty alleviation program is able to produce sustainable and long term improvements in household living standards. These findings are corroborated by studies from other countries (Ravallion and Chen 2005; Sadoulet, de Janvry and Davis 2001).

The evidence presented in this paper provides solid justification for steering the power of social networks of the indigenous in new directions. Social networks currently help indigenous people access employment opportunities. However, most of these employment opportunities are in the informal sector, agriculture and self-employment. Without a well designed intervention, social networks are not very helpful at increasing the mobility of the indigenous into different or new types of occupations, thus perpetuating the current poverty and inequality patterns. Developing policy instruments that increase the inclusiveness and effectiveness of social network effects is thus advisable. Pilot programs providing new role models for children, or examples of a few success cases adopting new production practices, accessing modern health services, cultivating new crops (such as non-traditional agricultural exports) are likely to have large positive multiplier effects through social networks and thus help equalize opportunities for indigenous peoples.

The relative scarcity of bridging social capital in indigenous communities suggests that interventions aimed at increasing social capital and agency in indigenous communities also deserve serious consideration. Some scholars argue that attempts to address the disadvantaged situations of poor and excluded groups through promoting participation, institutional engagement, and the formation of social capital cannot work without a deeper consideration of the structural disadvantages of the poor and the constraints to agency (defined as the associational and representative capacities). Cleaver (2005) notes that addressing the lack of physical and material assets as well as socio-structural constraints is a precondition for advancing the agency of the poor. Without this, the author continues, social relationships, collective action, and local institutions may structurally reproduce the exclusion of the poorest. In a less pessimistic view of the promises of social capital, Krishna (2001) compares 60 rural villages in India and concludes that while higher levels of social capital does not always help achieve development, it *may* do so, but only in cases where it is drawn upon actively and where the communities have capable agency - that is, they have a high capacity to participate. Following this finding, Krishna (2001) suggests that what we need are not necessarily new and better programs, but investments in the capacities and agency of communities by ways of leadership training, increased awareness of constitutional rights and government programs, and easier access to offices of the state.

Given the large number of competing programs and initiatives all in the name of increasing economic opportunities for indigenous peoples, it is striking to see how little is known

about what works and what does not. One obvious recommendation emerging from this paper is that it is essential to adopt results-based monitoring and evaluation systems accompanied by qualitative and quantitative impact evaluations that allow policy analysts to determine reliably which interventions have the highest and most cost-effective impact on the welfare of indigenous households. At a minimum such evaluations will help concerned policy makers decide the programs they can continue funding with scarce public funds.

Going forward, and taking into account the lack of progress in reducing income poverty, the decreasing but still wide gaps in health, education and social protection coverage, and limited access to income-generating opportunities, one avenue for raising awareness and putting indigenous peoples needs near the top of the agenda is the simultaneous initiatives on poverty and indigenous peoples. That is, the United Nations launched the 2nd decade for the world's indigenous peoples in 2006; the decade is scheduled to end in 2015, the same year that the Millennium Development Goals are to be achieved.

This suggests two actions that indigenous communities could consider. First, indigenous peoples could argue for a linking – formal or otherwise – of the indigenous decade with the MDGs. This could imply at the very least disaggregated data on indigenous peoples indicators in terms of poverty, education, health and so on. This could serve to highlight how far indigenous peoples are in terms of reaching the goals – in countries that will reach most of the goals by 2015 (for example, Mexico) and for countries that are less likely to reach them (for example, Guatemala). This information will not only highlight the needs of indigenous peoples, but also could be used to leverage special attention and programs. An extension would be to call for regular reporting and commitment by countries to attempt to reach the MDGs for indigenous peoples.

Second, drawing on the commitment to the decade and the MDGs, indigenous peoples could leverage this increased attention to indigenous peoples to argue for results. That is, rather than just getting more inputs or spending on programs that may or may not reach the indigenous peoples, the targets could be outcomes, such as specific reductions in illness rates or increases in school completion. The targets could be elements of “contracts” between governments and the indigenous peoples. In the event of missing targets, then indigenous peoples could renegotiate the contract or change the service provider.

At the risk of oversimplifying, the research to date on indigenous-related issues can be best characterized by two extremes. A few quantitative studies based on nationally or, at best, regionally representative household surveys (for example, Hall and Patrinos 2006), and a plethora of detailed and mainly qualitative studies of a small number of communities emphasizing the sociological and social norms and social interactions governing day to day life in indigenous communities (for example, Stephen 1991; Hamilton and Fischer 2003; Korovkin 1998; Bebbington et al. 1993). The former studies typically emphasize external validity at the expense of specificity thus neglecting differences in the norms guiding behavior within indigenous communities, while the latter studies emphasize specificity at the expense of “external validity.” What we present here is a first attempt to bridge the gap between these two extremes by emphasizing the role of social interactions in a quantitative study of economic behavior and outcomes. Nevertheless more research is needed in order to better understand the condition of indigenous peoples.

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